GRADING

Grading

General

Army Corps of Engineers Section 404/Section 10 Permits (U.S.)

Excavation and/or discharges of dredged or fill materials in waters of the United States below the ordinary high water elevation on each bank requires a U.S. Army Corps of Engineer's Section 404 Permit prior to the commencement of construction. **Section 404** of the Clean Water Act requires a permit for filling and grading work, mechanized land clearing, ditching or other excavation activity and piling installation. A **Section 10 Permit** is required for the obstruction or alteration of navigable waters of the U.S. This authority is based on the Rivers and Harbors Act and regulates work riverward or below the ordinary high water elevation of a navigable water. Navigable waters of the U.S. are those waterways that are now used, have been used in the past, or may be used in the future to transport interstate or foreign commerce (navigable waters of the U.S. are not necessarily the same as IDNR's navigable waterways). Engineer Form 4345, *Application for a Department of Army Permit* is used to apply for these permits. Only one application is required. The Corps will issue the appropriate permit and/or letter of permission (Section 10 or Section 404) needed for the activity.

For the Section 404 permit in non-tidal waters, the limits of jurisdiction are as follows:

1. No wetlands* present - jurisdiction is between the limit of the ordinary high water elevation on each bank.
2. When adjacent wetlands are present - the jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands.
3. When only wetlands are present, the limits of jurisdiction extend to the limits of the wetlands.

Waters of the United States include rivers, streams, creeks, intermittent tributaries, natural ponds, prairie potholes, impoundments, lakes and wetlands. They do not include land that was converted from wetland to cropland prior to December 23, 1985, nor do they include waste treatment systems such as treatment ponds or lagoons designed to meet the requirement of the Clean Water Act.

The Section 404/Section 10 Permit only covers those activities detailed by the plans and the conditions of the permit. If an activity is not shown either on the plans or in the permit conditions themselves, then these activities are not allowed if they occur in the waters of the United States. For example, the grading of an area located within waters of the United States that is not specifically shown on the plans should not be allowed to occur. This is especially true for wetlands areas. Read the permit. It tells you what you can and cannot do. If an activity is not specifically allowed in the permit or shown in the plans, and the contractor wishes to conduct this activity, then it is the responsibility of the contractor to obtain a permit or modification of the permit for the activity. The Corps will consider modification of the terms and conditions of the permit if requested to do so by the permittee. If it is mutually agreed to do so, the Corps of Engineers will give the permittee written notice of the modification, which will become effective on the date established by the Corps of Engineers.

The permit often contains conditions. Conditions of the permits may include items such as the following:

- no impacts to jurisdictional wetlands
- no silting and muddying of streams
- utilization of temporary seeding to avoid soil erosion
- no frequent fording of live streams

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit **must** be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions.

INDOT is responsible for the proper disposal of items taken from our right-of-way, especially if it is to be placed within waters of the United States, including wetlands. This is true whether the items are placed in INDOT right-of-way or on private property. The project engineer/ supervisor should ensure that a permit has been obtained, if one is required, prior to approving such disposal in waters of the U.S.

Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.

* 'Wetlands' here means jurisdictional wetlands. A jurisdictional wetlands is an area that has undergone the process of identification and delineation as laid out in the January 1987 *Final Report by the Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1, and found to be consistent with the wetlands requirements of the manual.

See Army Corps of Engineers Section 404/Section 10 Permit (U.S.) in the Laws and Regulations Section.

Construction in a Floodway

Projects involving construction, excavation, or placement of fill within the floodway of any river or stream, unless exempted, require the written approval of the Indiana Department of Natural Resources (IDNR) prior to initiating the activity. A floodway is defined as the channel of a river or stream and those portions of the flood plain adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any river or stream. Typically this is the 100 year floodway. Note that this is a different jurisdictional limit than the U.S. Army Corps of Engineers Section 404 or the Indiana Department of Environmental Management (IDEM) Section 401 Water Quality Certification has. Often the floodway is a larger area than the waters of the U.S.

EXEMPTIONS

Drainage Area

Work in floodways along waterways (except for the construction of dams, dikes, or levees) where the drainage area is less than 1 square mile requires no Construction in a Floodway Permit.

Bridge Exemption

Generally, any activity which disturbs soil or sediments within the floodway, and does not meet the requirements of the bridge exemption, requires a permit from IDNR. The Flood Control Act contains an exemption for certain bridge projects involving the construction or reconstruction of a state or county highway department bridge. In order for a bridge project to be exempt from obtaining a Construction in a Floodway permit, the following criteria must be met:

1. The project must be a state or county highway department project;
2. The project must be a bridge (IDNR considers a culvert to be a bridge) project;
3. The project must be located in a rural area. A rural area is defined as an area where:
   - A. The lowest floor elevation (including basement) of any residential, commercial, or industrial building impacted by the project is at least 2 feet above the 100 year flood elevation with the project in place;
   - B. The project is located outside the corporate boundaries of a consolidated or an incorporated city or town; and
   - C. The project is located outside of the territorial authority for comprehensive planning (generally a 2 mile buffer around a city or town).
4. The project must cross a stream having an upstream drainage area of less than 50 square miles.

All four criteria must be met in order for a project to be eligible for the exemption. **This exemption only applies to the Flood Control Act. If a bridge is to be constructed over a navigable waterway, or over or near a public freshwater lake, a permit will be required.** If a bridge project does not qualify for the exemption and work occurs in the floodway, then a Construction in a Floodway Permit must be obtained.

The Construction in a Floodway Permit often contains conditions. Conditions of the permits may include items such as the following:

- no impacts to jurisdictional wetlands
- no in channel work from April 1 to June 30
- no frequent fording of live streams

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit **must** be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do

not ignore any conditions. **Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.** Read the permit. It tells you what you can and cannot do. As with the U.S. Army Corps of Engineers Section 404 Permit and the Section 401 Water Quality Certification, the Construction in a Floodway Permit covers only those activities shown on the plans or specifically listed in the permit. No other activity is allowed in the floodway such as grading beyond the construction limits. Should the contractor wish to conduct such activity, then it is contractor's responsibility to contact the IDNR to obtain a waiver of the permit. INDOT is responsible for the proper disposal of items taken from INDOT right-of-way, especially if they are placed in the floodway. Such activity would require a Construction in a Floodway Permit.

See Construction in a Floodway Section for more detailed information.

Section 401 Water Quality Certification

Excavation and/or discharges of dredged or fill materials in waters of the United States below the ordinary high water elevation on each bank requires a U.S. Army Corps of Engineer's Section 404 Permit and possibly a Section 401 Water Quality Certification prior to the commencement of construction. For non-tidal waters, the limits of jurisdiction are as follows:

1. No wetlands present - jurisdiction is between the limit of the ordinary high water elevation on each bank.
2. When adjacent wetlands are present - the jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands.
3. When only wetlands are present, the limits of jurisdiction extend to the limits of the wetlands.

Waters of the United States, generally speaking, include rivers, streams, creeks, intermittent tributaries, natural ponds, prairie potholes, impoundments, lakes and wetlands.

The Section 401 Water Quality Certification is the state's certification to the U.S. Army Corps of Engineers that the project complies with the state's water quality standards. The Indiana Department of Environmental Management (IDEM) is responsible for the Section 401 Water Quality Certificate review process in Indiana.

The Section 401 Water Quality Certification only covers those activities detailed by the plans and the conditions of the permit. If an activity is not shown either on the plans or in the permit conditions themselves, then these activities are not allowed if they occur in the waters of the United States. For example, grading of an area located within waters of the United States that is not specifically shown on the plans should not be allowed to occur. This is especially true for wetlands areas. Read the permit. It tells you what you can and cannot do. If an activity is not specifically allowed in the permit or shown in the plans, and the contractor wishes to conduct this activity, then it is the responsibility of the contractor to obtain a permit or modification of the permit for the activity.

The Section 401 Water Quality Certificate often contains conditions. Typically these conditions might include items such as:

- no vegetation removal beyond construction limits
- no in stream work between April 1 through June 30
- install and maintain erosion control features

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package, and also should be posted at the construction site at all times. It is the project engineer's responsibility to be familiar with these conditions, and comply with them. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions. **Remember, if you have one permit for an activity, you are not exempted from obtaining all other required permits for the same work. Make sure you have obtained all required permits.**

See the Section 401 Water Quality Certification Section of the Laws and Regulations Section for further information.

Clearing Right-of-Way

Archeological and Historic Preservation

During the environmental document preparation phase, the proposed right-of-way is examined for archeological and historical resources. An archeological record check, an archeological reconnaissance, if necessary, and sometimes archeological excavation are conducted for the project area. Previously undisturbed existing and proposed right-of-way is usually included in the archaeological reconnaissance. The findings of the archeological work and historical data are included in environmental documents, which are included in the construction document package.

Despite these precautions, on rare occasions, artifacts are discovered during construction. Construction crews and project engineers should be alert to the presence of:

- properties 50 years old or older,
- archeological artifacts (such as bones, stone tools including arrow heads, pottery),
- features (such as shell or charcoal concentrations, foundations, etc.), and
- human remains.

If artifacts, features, or remains are uncovered during the clearing of the right-of-way, state law requires that the work stop in the area of the discovery, and that the discovery be reported to the Division of Historic Preservation and Archaeology, IDNR, within 2 working days. **First notify the Division of Operations Support and the Environmental Assessment Section of INDOT of the finding, then report the discovery to IDNR at (317) 232-1646, FAX (317) 232-8036. Do not allow anyone to collect artifacts from the discovery except the appropriate IDNR or INDOT archaeological staff.** The archaeological staff will delineate the limits of the work stoppage. Work on the remainder of the project can proceed as normal. If the discovery is of sufficient importance, IDNR may wish to properly excavate the area and have it guarded. If this occurs, contact the Division of Operations Support and the Environmental Assessment Section for guidance.

See Archeological and Historic Section in the Laws and Regulations Section for further information.

Army Corps of Engineers Section 404/Section 10 Permits (U.S.)

Excavation and/or discharges of dredged or fill materials in waters of the United States below the ordinary high water elevation on each bank requires a U.S. Army Corps of Engineer's Section 404 Permit prior to the commencement of construction. Section 404 of the Clean Water Act requires a permit for filling and grading work, mechanized land clearing, ditching or other excavation activity and piling installation. A Section 10 Permit is required for the obstruction or alteration of navigable waters of the U.S. This authority is based on the Rivers and Harbors Act and regulates work riverward or below the ordinary high water elevation of a navigable stream. Navigable waters of the U.S. are those waterways that are now used, have been used in the past, or may be used in the future to transport interstate or foreign commerce. Note that waterways that are navigable waters under the Rivers and Harbors Act are not necessarily the same as navigable waterways as defined by Indiana's Flood Control Act. Engineer Form 4345, *Application for a Department of Army Permit* is used to apply for these permits. Only one application is required. The Corps will issue the appropriate permit and/or letter of permission (Section 10 or Section 404) needed for the activity.

For the Section 404 permit in non-tidal waters, the limits of jurisdiction are as follows:

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The Section 404/Section 10 Permit only covers those activities detailed by the plans and the conditions of the permit. If an activity is not shown either on the plans or in the permit conditions themselves, then these activities are not allowed if they occur in the waters of the United States. For example, the clearing or filling of an area located within waters of the United States that is not specifically shown on the plans should not be allowed to occur. This is especially true for wetlands areas. Read the permit. It tells you what you can and cannot do. If an activity is not specifically allowed in the permit or shown in the plans, and the contractor wishes to conduct this activity, then it is the responsibility of the contractor to obtain a permit or modification of the permit for the activity. The Corps will consider modification of the terms and conditions of the permit if requested to do so. If it is mutually agreed to do so, the Corps of Engineers will give the permittee written notice of the modification, which will become effective on the date established by the Corps of Engineers.

The permit often contains conditions. Conditions of the permits may include items such as the following:

- no impacts to jurisdictional wetlands
- no silting and muddying of streams
- utilization of temporary seeding to avoid soil erosion
- no frequent fording of live streams

- do not clear large trees between April 15 to September 15. - This condition would be included to protect the endangered Indiana bat.

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit **must** be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions.

INDOT is responsible for the proper disposal of items taken from our right-of-way, especially if it is to be placed within waters of the United States, including wetlands. This is true whether the items are placed on INDOT right-of-way, INDOT property or on private property. The project engineer/ supervisor should ensure that a permit has been obtained, if one is required, prior to approving such disposal.

Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.

* 'Wetlands' here means jurisdictional wetlands. A jurisdictional wetlands is an area that has undergone the process of identification and delineation as laid out in the January 1987 *Final Report by the Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1, and found to be consistent with the wetlands requirements of the manual.

See Army Corps of Engineers Section 404/Section 10 Permit (U.S.) in the Laws and Regulations Section.

Asbestos

Construction projects may involve exposure to asbestos with either building or bridge renovation/demolition or burning. Asbestos material has been found in approximately 20% of all buildings. It is most likely to occur in buildings built between 1950 and 1975. It was used for surfacing materials, thermal system insulation and other miscellaneous purposes. The presence of asbestos in INDOT bridges occurs at a much lower percentage. When it is present, it is most commonly found on utilities, gunnite, various joints, rail paint and bridge seats.

Prior to the demolition or renovation of buildings or bridges, INDOT will undertake an asbestos inspection of the facility. The report of this inspection will be included in the contract.

Demolition projects, regardless of the presence or not of asbestos must be reported to IDEM's Office of Air Management at least 10 working days (Monday through Friday) prior to demolition. In Marion County, the Indianapolis Air Pollution Control Division must also be contacted. Demolition is defined as the removal of buildings or bridges, or the removal of supporting beams, walls, or structures.

Renovation projects, the modifying of any existing structure, require notification of IDEM's Office of Air Management **at least 10 working days prior to renovation if:**

1. **≥ 260 linear feet, 160 square feet, or 35 cubic feet of regulated asbestos containing material that is to be stripped, removed, dislodged, cut, drilled or disturbed.**

2. < 260 linear feet, 160 square feet, or 35 cubic feet of regulated asbestos containing material is to be stripped, removed, dislodged, cut, drilled, or disturbed, **no notification is required**.
3. **Marion County only** - ≥ 25 linear feet and 15 square feet (Notify Indianapolis Air Pollution Control Division).

Notification must be done for each structure, not by parcels. Each structure requires its own notification. However, you may put up to 10 structures on one notification. House trailers are not regulated, therefore they require no notification. No demolition or renovation of either buildings or bridges can occur until regulated asbestos containing material has been properly removed and disposed of.

See the Asbestos Regulations Section in the Laws and Regulations Section for detailed information.

Burning

Open Burning

Open burning is generally prohibited. If it is determined that there is no alternative to the burning of woody material, then an Open Burning Variance must be obtained from the Indiana Department of Environmental Management (IDEM). For INDOT projects involving clearing of less than 4 (1.6 ha) acres, the contractor must obtain a variance. For projects clearing greater than 4 acres, INDOT will obtain the variance. Fires must be attended at all times until completely extinguished. No burning shall be conducted during unfavorable meteorological conditions such as temperature inversions, high winds, air stagnation, etc. **Clark, Floyd, Lake and Porter counties have an air quality problem and will not allow any open burning variances.** Some cities will have additional local restrictions. Additional information can be found in Operating Procedure 13. All pertinent training and personal protective equipment requirements should be obtained through the Safety Supervisor.

Air Curtain Destructor (Burning)

Air curtains consist of two long pipes constructed into a "T" shape that is positioned next to a pit in the ground with approximately 12 to 15 ft. depth and 10 ft. width. The length of the pit is a function of the length of the pipe. A fan is connected at the "T" end of the shape and forces air through a slit at the other end. This curtain of air is blown into the pit where the burning of the woody material should be maintained below the curtain of air. A completed application and $50 fee must be submitted at least 30 days before operation begins to the Department of Environmental Management (IDEM) to obtain an approval letter which must remain at the air curtain destructor site at all times. Only untreated wood products shall be burned. The air curtain destructor shall be located no less than 250 feet from any private residence, public roadway, power line, or structure, no less than 500 feet from any pipeline or fuel storage area, and within 1,000 feet of a landfill or transfer station. A list of approval conditions can be found in the Laws and Regulations Section.

Asbestos Burning

Asbestos is a mineral with long, thin fibrous crystals. Its strength and the unique property of having a high melting point made asbestos an ideal material for many products, especially insulation and fireproofing. Because of its resistance to heat, asbestos is not destroyed in the fire and will become airborne when liberated from its confining matrix. The asbestos fibers are microscopic and entrainment in the air presents a health hazard to the respiratory system. Construction projects may involve exposure to asbestos with burning. Asbestos material has been found in approximately 20% of all buildings. It is most likely to occur in buildings built between 1950 and 1975. 326 IAC 4-1-3 (a) (2) (D) states that **all** asbestos containing materials must be removed before the burning of a structure.

See the Burning Section of the Laws and Regulations Section for further information.

Construction in a Floodway

Any project involving construction, excavation, or placement of fill within the floodway of any river or stream, unless exempted, requires the written approval of the Indiana Department of Natural Resources (IDNR) prior to initiating the activity. A floodway is defined as the channel of a river or stream and those portions of the flood plain adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any river or stream. Typically this is the 100 year floodway. Note that this is a different jurisdictional limit than the U.S. Army Corps of Engineers Section 404 or the Section 401 Water Quality Certification has. Often the floodway is a larger area than the waters of the U.S.

EXEMPTIONS

Drainage Area

Work in floodways (except for the construction of dams, dikes, or levees) along rivers and streams where the drainage area is less than 1 square mile, requires no Construction in a Floodway Permit.

Bridge Exemption

Generally, any activity which disturbs soil or sediments within the floodway, and does not meet the requirements of the bridge exemption, requires a permit from IDNR. The Flood Control Act contains an exemption for certain bridge projects involving the construction or reconstruction of a state or county highway department bridge. In order for a bridge project to be exempt from obtaining a Construction in a Floodway permit, the following criteria must be met:

1. The project must be a state or county highway department project;
2. The project must be a bridge (IDNR considers a culvert to be a bridge) project;
3. The project must be located in a rural area. A rural area is defined as an area where:
    A. The lowest floor elevation (including basement) of any residential, commercial, or industrial building impacted by the project is at least 2 feet above the 100 year flood elevation with the project in place;

B. The project is located outside the corporate boundaries of a consolidated or an incorporated city or town; and

C. The project is located outside of the territorial authority for comprehensive planning (generally a 2 mile buffer around a city or town).

4. The project must cross a stream having an upstream drainage area of less than 50 square miles.

All four criteria must be met in order for a project to be eligible for the exemption. If a bridge project does not qualify for the exemption, then a Construction in a Floodway Permit, and work occurs in the floodway, a permit must be obtained. **This exemption only applies to the Flood Control Act. If a bridge is to be constructed over a navigable waterway, or over or near a public freshwater lake, a permit will be required.**

Read the permit. It tells you what you can and cannot do. As with the U.S. Army Corps of Engineers Section 404 Permit and the Section 401 Water Quality Certification, the Construction in a Floodway Permit covers only those activities shown on the plans or specifically listed in the permit. No other activity is allowed in the floodway such as clearing or filling beyond the construction limits. Should the contractor wish to conduct such activity, then it is contractor's responsibility to contact the IDNR to obtain a waiver of the permit.

The Construction in a Floodway Permit often contains conditions. Conditions of the permits may include items such as the following:

- no impacts to jurisdictional wetlands
- no in channel work from April 1 to June 30
- no frequent fording of live streams

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit **must** be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions.

INDOT is responsible for the proper disposal of items taken from INDOT right-of-way, especially if they are placed in the floodway. Such activity would require a permit.

Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.

See Construction in a Floodway Section for more detailed information.

Dewatering Well Installation

Dewatering well installation, if temporary, requires a report to be sent to IDNR, Division of Water. If the well is to be permanent then a registration of the well will be required. The Water Rights: Emergency Regulation Act provides protection for domestic well owners against the impact of high capacity ground-water pumpage if it substantially lowers water levels, resulting in the failure of a domestic well. INDOT or its contractors may be liable under this

statute if dewatering operations associated with construction result in failure of (a) neighboring domestic well(s).

Who Must Register

Indiana Code 14-25-7-15 requires every person who has a significant water withdrawal facility to register that facility with the Natural Resources Commission. A water withdrawal facility can be considered to include any and all well, surface water intakes, pumping apparatus or other installation which supply water to a common collection and/or distribution point. As defined by the statute, a significant water withdrawal facility means the water withdrawal facilities of a person that, in the aggregate from all sources and by all methods, has the capability of withdrawing more than one-hundred thousand (100,000) gallons of ground water, surface water, or ground and surface water combined in one (1) day; however, this does not include water withdrawal facilities located in or on an off stream impoundment that is principally supplied by a significant water withdrawal facility.

See the Dewatering Well Installation Section of the Laws and Regulations Section for detailed information.

Ditch Reconstruction

Any person proposing to undertake activities affecting ditches or drains within ½ mile of a public fresh water lake, where the bottom elevation of the ditch would be lower than the legal or average water level of the lake must obtain a Ditch Permit from the Indiana Department of Natural Resources. A public freshwater lake is a **naturally occurring** body of water with **public access provided by the property owner**. Most public freshwater lakes are located in the northern part of the state. The term "public freshwater lake" does not include Lake Michigan, lakes within the city of Hammond, borrow pits, sinkholes, or privately owned water bodies associated with surface coal mining.

See the Ditch Reconstruction Section of the Laws and Regulations Section for detailed information.

Endangered Species

Some of the endangered species in Indiana are the Bald Eagle, Indiana/gray bat, Northern (Blind) Cave fish, and various species of mussels. The environmental document and the permit **(Construction in a Floodway Permit issued by the Department of Natural Resources, Division of Water, under the Flood Control Act, IC 14-28-1)** which is included in the contract documents, should mention any endangered species in the area and the protective measures that are required to ensure that no impact is made to either the life forms or their habitat.

Time constraints may be placed on the clearing of right-of-way (specifically large trees with loose bark) to protect the bats. The time constraints must be adhered to. If a construction project is scheduled to start at the beginning of these time constraints and INDOT has clear title to the property, it might be wise to send INDOT personnel out to fell all large trees prior to this time period (April 15 to September 15). If previously unknown endangered species are found at

a project site, contact the Division of Operations Support immediately at (317) 234-0409 for assistance.

See the Endangered Species Section of the Laws and Regulations Section for detailed information (State Endangered Species Act IC 14-22-34).

Fugitive Dust

Fugitive dust means the generation of particulate matter to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located regardless of whether from a single operation or a number of operations. Simply, if at least fifty percent (50%) of the dust can be breathed in or is visible crossing the right-of-way, it is fugitive dust.

The clearing of right-of-way may generate fugitive dust. Indiana code states that fugitive dust from construction or demolition where **every reasonable precaution has been taken in minimizing fugitive dust emissions** is exempted from the fugitive dust rule. This code also provides some fugitive dust control measures. These include spraying with water or treating with an approved oil or chemical dust suppressant. These precautions are especially important on dry, windy days. Every reasonable precaution must be taken by the contractor to avoid dust from crossing the right-of-way.

See the Fugitive Dust Section of the Laws and Regulations Section for detailed information.

Hazardous Material

During the early development of INDOT projects, the proposed right-of-way undergoes an investigation for the presence of hazardous waste. If found, INDOT attempts to have the site remediated prior to the purchase of the property. Although it is desirable, hazardous materials cannot always be taken care of prior to the construction of INDOT projects. Known or unknown hazardous waste sites may have to be dealt with on INDOT right-of-way during the construction phase.

During the clearing of right-of-way or excavation, workers may come into contact with previously unknown contaminated materials. Be on the lookout for the following indications that you may be dealing with hazardous waste:

- abandoned drums, barrels, old paint cans, chemical containers, tanks, pits, lagoons, ditches, discharge pipes
- surface water plumes
- debris piles
- raw material storage piles
- areas with burn marks
- an area that used to be a loading ramp or railroad staging area
- barren soil areas
- obvious changes in vegetation
- dead trees/shrubs
- recent ground disturbances

- surface staining or discoloration of soils
- odors

If soils are suspected to contain hazardous material, stop work and remove all personnel from the area immediately and notify the Division of Operations Support. The suspected area should be cordoned off until the contaminants are identified. Testing may be required to determine the waste classification of the contaminated material. Only properly trained (INDOT and contractor) personnel should be allowed in the area of the hazardous material. Once the type of waste is determined, the area to be cordoned off may change, depending upon the danger the waste presents. Work can continue elsewhere within the project limits as long as the work area is outside of the cordoned area. Contact the Division of Operations Support for guidance.

Hazardous waste generated in quantities below 100 kg per month, and disposed of in quantities below 100 kg per shipment, is not regulated and may be disposed of at an approved facility. This waste will usually require certification as an industrial waste. Contact IDEM for disposal facility guidance. For quantities of hazardous material greater than this, if it is to be disposed of, the waste must be disposed in a hazardous waste landfill. There is only one such landfill in Indiana. A hazardous waste manifest must be signed by the generator (INDOT) and must accompany each load of hazardous waste from cradle to grave. *The contractor can legally sign the forms if the Commissioner of INDOT executes a written authorization/power of attorney instrument.*

INDOT must notify IDEM of its activities and obtain an **EPA Identification Number**. This normally takes one day. An EPA ID Number is required for each site. A site is defined as a place where a structure or groups of structures are located. Each site generating hazardous waste must have its own EPA ID Number. The manifest certification must be signed by the generator (INDOT *or contractor - see above*) and the transporter and include the date of acceptance of waste. INDOT must retain one copy of the report and give the transporter the remaining copies of the manifest.

If at least 100 kg of hazardous waste or 1 kg of acutely hazardous waste is generated in a calendar month, INDOT must supply a copy of the manifest to IDEM's Office of Solid and Hazardous Waste Management. This copy of the manifest must be submitted within five days of the initial transportation of the hazardous waste off-site.

See the Hazardous Materials Section of the Laws and Regulations Section for further information.

In stream Blasting Permit

Indiana Fish and Wildlife Code requires that a permit be procured from the Indiana Department of Natural Resources prior to setting, using or discharging dynamite or other explosive in any waters of the State.

See the In Stream Blasting Permit Section of the Laws and Regulations Section for further information.

Karst

Karst landscapes are usually formed on limestone from the surface and subsurface removal of rock mass by dissolution of calcite or dolomite. This forms irregularities on the land surface. Karst areas normally have caves that developed as a result of dissolution along joints, bedding planes, or other openings. As ground water dissolves subsurface limestone, cave systems enlarge and eventually the overburden will cause roofs of caves to collapse creating, on the surface, a bowl shaped land feature called a **sink hole.** Sink holes are direct conduits to ground water. Because the dissolution along the joints and bedding planes, ground water can travel extremely fast relative to ground water in other types of aquifers. Adsorption to aquifer material, biological uptake, and microbial activity are a few processes to reduce ground water pollution. However, in a karst region ground water flows through joints and along bedding planes much like water flows through pipes in our homes. This fast flow rate does not allow adsorption, microbial activity, or uptake processes to remove pollution from the ground water before it is pump from the ground by a landowner.

Karst features exist in an area of southern Indiana. This area ranges from 10-50 miles wide and stretches from Crawfordsville to the Ohio River (see map in Laws and Regulations Section). Much attention has been given by INDOT in the planning, design, and construction of road projects in the karst area. There are, however, certain responsibilities assigned to maintenance activities. INDOT has entered into a **Memorandum of Understanding** (included in the Laws and Regulations Section) with other agencies in an effort to learn more about karst features and to regulate certain activities in those areas. Included in this Memorandum of Understanding is a commitment from INDOT, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and the U.S. Fish and Wildlife Service to determine the location of sinkholes, caves, underground streams, and other related Karst features and their relationship prior to proposed alterations or construction in karst regions of the State.

Roadways typically have runoff such as salt and unknown spills that pollute soils near the road. In karst terrain, construction activities may cause soil releases to ground water via nearby sink holes. Excess silt introduced into a sink hole may seal a fissure system effectively removing means of draining the roadway. A wide range of toxic contaminants adhere to soils and may be liberated when soils are introduced into water. Contractors are required to have an erosion control plan. Timely implementation of the plans is very important in the karst terrain. Maintenance of heavy machinery, such as oil changes, should be done in a designated area which should not be near the sinkhole. After adverse weather conditions, check erosion control measures for damage. The use of peat and other types of filters and wide grassy areas to catch and clean contaminants are some methods currently being used by INDOT to protect the groundwater. Likewise a project in a karst area might include the construction of detention and/or retention basins. Regular inspections should be scheduled to ensure minimum and satisfactory compliance with the Memorandum of Understanding.

Clearing right-of-way, grading, excavation, tile drains, pesticide and herbicide treatment, and runoff from roadways are a few issues that may endanger the ground water quality in karst regions. It is important therefore, that you are aware of potential environmental impacts that could occur if construction activities were conducted in the usual manner. In addition to the possible lethal effects on wildlife, contamination of ground water used for drinking water could occur. Regular inspections should be scheduled to ensure minimum and satisfactory compliance with the Memorandum of Understanding. Any sinkhole modification may result in the need for

an EPA Injection Well Permit. The Division of Operations Support should be contacted in this event or to answer any question concerning karst area activities.

*The **Memorandum of Understanding** states that prior to acceptance of the final design plans an agreement will be developed which will set out the appropriate and practicable measures to offset unavoidable impacts to karst features. This agreement will be signed by the Department Director of Indiana Department of Natural Resources (IDNR), the Commissioner of the Indiana Department of Environmental Management (IDEM), the commissioner of INDOT, and the Supervisor of the U.S. Fish and Wildlife Service (USFWS) Bloomington, Indiana field office. The agreement will become a part of the contract documents for the project, will be discussed at the pre-construction conference and will be on file at the office of the project administrator. INDOT will assure that the terms of the agreement will be completed with all safeguards given to the karst area. Special provisions, which are binding provisions that are a part of the contract, will be included outlining the precautions to be taken. Constructions and design strategies for handling karst features will be discussed with the contractor(s) and project administrator during the pre-construction conference. Project administrator shall ensure that the contractor is following the new erosion control standards that meet rule 5 of 327 IAC 15 and any special precautions outlined in the design plans that the sinkhole treatment is being handled correctly. The erosion control plan must be available at the project administrator's office. An emergency response plan will be made a part of the contract documents. In addition, the contract documents will contain a strategy for signing to alert the public to the fact that all types of spills are potentially hazardous to the karst environment. For INDOT, this plan would be procedure 20 of the field operations manual dated 6/24/92.*

See the Karst Section of the Laws and Regulations Section for further information.

Lake Preservation Act (Permit)

The Lake Preservation Act mandates that any person proposing to perform an activity such as right-of-way clearance at or lakeward of the legal shoreline or average normal water level (mark) of a public freshwater lake must obtain written approval of the Indiana Department of Natural Resources prior to initiating the activity. A public freshwater lake is a **naturally occurring** body of water with **public access provided by the property owner**. Most public freshwater lakes are located in the northern part of the state. The term "public freshwater lake" does not include Lake Michigan, lakes within the city of Hammond, borrow pits, sinkholes, or privately owned water bodies associated with surface coal mining.

See the Lake Preservation Act Section of the Laws and Regulations Section for further information.

Navigable Waterway Permit

A Navigable Waterway permit is required from IDNR when performing work below the ordinary high water mark within the floodplain of a navigable waterway. This includes any activity which disturbs sediments below the high water mark, including the clearing of right-of-way, construction, placement of fill, excavation of material, or withdrawal of water from a

navigable waterway. A list of navigable waterways is included in the Laws and Regulations Section under Navigable Waterway Permit. **An IDNR Construction in a Floodway Permit can also serve as a Navigable Waterway Permit. However, exemption from the Construction in a Floodway Permit does not exempt you from obtaining a Navigable Waterway Permit.**

See the Navigable Waterway Permit Section of the Laws and Regulations Section for further information.

Rule 5 - Erosion Control

The requirements of Rule 5 apply to projects, which disturb 1 acre or more of total land area. Projects that result in the disturbance of less than one acre, but are part of a larger common plan of development or sale are also subject to Rule 5. If the project falls under neither of these categories, then Rule 5 does not apply. However, erosion control practices should still be utilized at the site regardless of the land area that is disturbed. Often erosion control measures are conditions of Construction in a Floodway, U.S. Army Corps Section 404 Permits, and Section 401 Water Quality Certifications.

For INDOT projects, an erosion control plan is developed during the design phase. This plan, after being filed and reviewed by the appropriated agency (if it falls under the jurisdiction of Rule 5) is incorporated into the plans and is included in the contract documents. If the project falls under the jurisdiction of Rule 5, INDOT also prepares and submits to IDEM the Notice of Intent. Since construction activity cannot begin until the Notice of Intent is filed, the project engineer/supervisor should notify the contractor of such filing.

It is the responsibility of the project engineer to ensure that the contractor has properly implemented and maintained the erosion control plan. Both INDOT and the contractor should continually monitor the erosion control measures to determine if they are working, or if they need maintenance. Steps should be taken to change the plan if it is not effective. Frequent temporary seeding can be one of your most effective tools in controlling erosion. Contact the local representative of each Soil and Water Conservation District for assistance in developing more effective erosion control measures. They are excellent resource people for either the contractor or the project engineer/supervisor.

A local Soil and Water Conservation District representative, or representative from IDEM or IDNR may visit the site during the construction period to determine the effectiveness of the erosion control plan. Usually the Storm water Specialist from the IDNR will make periodic inspections. Cooperate with these representatives to ensure that the erosion control measures that are being used are the most effective for the job.

See the Rule 5-Erosion Control regulations section for detailed information.

Section 401 Water Quality Certification

Excavation and/or discharges of dredged or fill materials in waters of the United States below the ordinary high water elevation on each bank requires a U.S. Army Corps of Engineer's Section 404 Permit and possibly a Section 401 Water Quality Certification prior to the commencement of construction. For non-tidal waters, the limits of jurisdiction are as follows:

1. No wetlands present - jurisdiction is between the limit of the ordinary high water elevation on each bank.

2. When adjacent wetlands are present - the jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands.
3. When only wetlands are present, the limits of jurisdiction extend to the limits of the wetlands.

Waters of the United States, generally speaking, include rivers, streams, creeks, intermittent tributaries, natural ponds, prairie potholes, impoundments, lakes and wetlands.

The Section 401 Water Quality Certification is the state's certification to the U.S. Army Corps of Engineers that the project complies with the state's water quality standards. The Indiana Department of Environmental Management (IDEM) is responsible for the Section 401 Water Quality Certificate review process in Indiana.

The Section 401 Water Quality Certificate often contains conditions. Typically these conditions might include items such as:

- no vegetation removal beyond construction limits
- no in stream work between April 1 through June 30
- install and maintain erosion control features

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package, and also should be posted at the construction site at all times. It is the project engineer's responsibility to be familiar with these conditions, and comply with them. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions. **Remember, if you have one permit for an activity, you are not exempted from obtaining all other required permits for the same work. Make sure you have obtained all required permits.**

See the Section 401 Water Quality Certification Section of the Laws and Regulations Section for further information.

Solid Waste Disposal

Solid Waste is defined per IC 13-11-2-205 as any garbage, refuse, sludge, or other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, or agricultural operations or from community activities.

Operating Procedure 13 describes current practices for removal and disposal of material and objects from the right-of-way. INDOT is responsible for the proper disposal of items taken from INDOT right-of-way. These materials (uncontaminated dirt, rocks, brick, concrete, road demolition waste) may be disposed of on INDOT property or at a Municipal Solid Waste Landfill (MSWLF). If there is Municipal Solid Waste/trash that is included with the material collected on INDOT right-of-way, it must be segregated from the construction waste. The trash will then have to be disposed of in a proper waste storage container on INDOT property and then transported to a Municipal Solid Waste Landfill for proper disposal. If the trash is combined with the construction waste it cannot be stored on INDOT property. All materials are required to be taken directly from the INDOT right-of-way to a certified facility for proper disposal. Unless burned in accordance with the requirements, perishable materials and debris should be removed from the right-of-way and disposed of at certified disposal facility. **No solid waste will be disposed of or buried in jurisdictional wetlands, waters of the US or in a**

floodway without the proper permits. If the material (uncontaminated dirt, rocks, brick, concrete, road demolition waste) is buried on INDOT's property, permission must be received from the Project Engineer. This material should be buried in an area where no construction activities will take place. If the material is buried on private property, written permission from the owner must be obtained.

Burning of perishable material shall be done in accordance with the applicable laws, ordinances, rules and regulations. All necessary permits must be obtained prior to burning (See burning section above). No person shall cause or allow to store, contain, process or dispose of solid waste in a manner which creates a threat to human health or the environment, including creating a fire hazard, vector attraction, air or water pollution, or contamination.

See the Solid Waste Disposal Section of the Laws and Regulations Section for further information.

Spill Response

Hazardous material releases, oil spills, fish/animal kills and radiological incidents must be reported to Office of Emergency Response, IDEM **(888) 233-7745.** This should occur as soon as action has been taken to either contain/control the extent of the release, or protect persons, animals or fish from harm or further harm. Appropriate response actions for spills occurring on project sites, in order:

1. Identify the spilled material from a safe distance,
2. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand or by other available means,
3. Cordon off the area of the spill,
4. Deny entry to the cordoned off area to all but response personnel, and
5. Contact OER/IDEM then Operations Support.

See the Spill Response Section of the Laws and Regulations Section for further information.

Underground Storage Tanks/Leaking Underground Storage Tanks

Unknown and/or unregistered underground storage tanks (UST) and leaking underground storage tanks (LUST) are occasionally encountered during construction projects. State and federal regulations regarding USTs are enforced by the Indiana Department of Environmental Management (IDEM). Notification of IDEM and submittal of closure reports are usually required, depending on when the tank is discovered and whether or not it is a regulated UST. The following types of tanks are **not** regulated under 40 CFR Part 280:

1. Farm and residential tanks of 1,100 gallons or less capacity holding motor fuel used for noncommercial purposes.
2. Tanks storing heating oil used on the premises where it is stored.
3. Tanks on or above the floor of underground areas, such as basements or tunnels.
4. Septic tanks and systems for collecting storm water and wastewater.
5. Flow-through process tanks (such as oil-water separators).
6. Emergency spill and overfill tanks.

A contractor or individual certified through the Office of the State Fire Marshall (OSFM) must be on-site while all UST work is being conducted. If contaminated soil or groundwater is discovered during the tank removal, then IDEM must be notified within 24 hours, and a LUST Site Investigation report and Corrective Action Plan must be prepared and submitted.

For sites with **small quantities** of soil contamination only, excavation and disposal at an industrial waste landfill may be the quickest solution. However, land filling simply moves the contaminant from one location to another, and should therefore be avoided whenever possible. Where contaminated soil is encountered within the right-of-way, and the source of contamination (the leaking underground storage tank) is not located on INDOT property or removed by INDOT's contractor, then INDOT is **not** considered the owner/operator, and the contaminated soil can be returned to the excavation trench provided the following conditions are met:

1. underground equipment, such as a storm sewer line, will not act as a conduit for further migration of the contamination;
2. impervious geological features will not be disturbed or punctured in a way that allows contamination to migrate into an aquifer;
3. cross-contamination of stacked fill material which expands the area of contamination will not be allowed;
4. migration of contamination in storm water runoff due to the stockpiling of excavated soil cannot occur (stockpiled contaminated soil should be returned to the trench by the end of the day, or covered with plastic until it can be redeposited); and
5. inversion of layers of contamination in the redeposited soil will not be allowed.

Cast iron and PVC sewer and water lines should not be placed in a trench where they will come into contact with contaminated soil or groundwater. Also, if returning contaminated soil to the trench from which it was excavated is not consistent with the construction plans, then the contaminated soil should be remediated or disposed of in an approved landfill. If emergency conditions exist, then IDEM must be notified immediately.

See the UST/LUST Regulations Section for detailed information.

Well Abandonment (Oil and Gas)

The procedure for well abandonment is very specific. An inspector from the Division of Oil and Gas (IDNR) **MUST** be present when the well is plugged. If an existing oil or gas related well is discovered during construction, contact the Division of Operation Support for details regarding abandonment requirements.

See the Well Abandonment, Oil and Gas Wells Section of the Laws and Regulations Section for further information.

Water Well Abandonment

In Indiana, it is not uncommon to see an older farmstead or other residence with a hand pump or a dug well covered over with rotting boards. These types of situations are a threat to human safety as well as potential sources of ground water contamination. The water well drilling law requires that these abandoned wells must be sealed with either a threaded or welded cap over the casing or by filling the well casing with impermeable material. The procedure for well abandonment is very specific and requires a certified well driller. In addition, the IDNR, Division of Water, should be notified in writing of abandonment within thirty days after plugging is completed.

According to Indiana code, "*A well which has not been used for more than three (3) months without being permanently abandoned must be sealed at or above the ground surface by a welded, threaded or mechanically attached watertight cap. The well shall be maintained so that the well does not become a source or channel of ground water contamination*."

See the Water Well Abandonment Section of the Laws and Regulations Section for further information.

Cuts

See Clearing Right-of-Way Section.

Embankments

See Clearing Right-of-Way Section

Grading over Peat Marshes

Army Corps of Engineers Section 404 Section 10 Permits (U.S.)

See Clearing Right-of-Way, Army Corps of Engineers Section 404/Section 10 Permit (U.S.) Section.

Construction in a Floodway

See Clearing Right-of-way, Construction in a Floodway Section

Section 401 Water Quality Certification

See Clearing Right-of-Way, Section 401 Water Quality Certification Section.

Wetlands

The presence of peat marshes is an excellent indicator of the presence of jurisdictional wetlands, either presently or in the past. If you encounter peat marshes, and no mention was made of wetlands in the environmental and/or permits, contact the Division of Operations Support to let them know that wetlands may be present in the project area. They will have the area checked out and will let you know if there is a potential problem. If the environmental and/or permit documents indicate that wetlands are present in the area, make sure you conform to all of the mitigation measures and conditions of these documents.

A jurisdictional wetlands is an area that has undergone the process of identification and delineation as laid out in the January 1987 *Final Report by the Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1, and found to be a consistent with the wetlands requirements of the manual. The permits have the force of law, and must be adhered to completely.

See Wetlands Section of the Laws and Regulations Section for more information.

Slides

See Clearing Right-of-Way Section.

Excavation for Small Structures and Channel Changes

See Clearing Right-of-Way Section

Sinkholes

Archeological/Historic

Construction crews and project engineers should be alert to the presence of:

- properties 50 years old or older,
- archeological artifacts (such as bones, stone tools including arrowheads, pottery),
- features (such as shell or charcoal concentrations, foundations, etc.), and
- human remains.

If artifacts, features, or remains are uncovered during the work in the sinkhole, state law requires that the work stops, and that the discovery be reported to the Division of Historic Preservation and Archaeology, IDNR, within 2 working days. **First notify the Division of Operations Support, and the Environmental Assessment Section of INDOT of the finding, then report the discovery to IDNR at (317) 232-1646, FAX (317) 232-8036. Do not allow anyone to collect artifacts from the discovery except the appropriate IDNR or INDOT archaeological staff.** The archaeological staff will delineate the limits of the work stoppage. Work on the remainder of the project can proceed as normal. If the discovery is of sufficient importance, IDNR may wish to properly excavate the area and have it guarded. If this occurs, contact the Division of Operations Support and the Environmental Section of INDOT for guidance.

See Archeological and Historic Section of the Laws and Regulations Section for more information.

Army Corps of Engineers Section 404/Section 10 Permits (U.S.)

Excavation and/or discharges of dredged or fill materials in waters of the United States below the ordinary high water elevation on each bank requires a U.S. Army Corps of Engineer's Section 404 Permit prior to the commencement of construction. Section 404 of the Clean Water Act requires a permit for filling and grading work, mechanized land clearing, ditching or other excavation activity and piling installation. A Section 10 Permit is required for the obstruction or alteration of navigable waters of the U.S. This authority is based on the Rivers and Harbors Act and regulates work riverward or below the ordinary high water elevation of a navigable stream. Navigable waters of the U.S. are those waterways that are now used, have been used in the past, or may be used in the future to transport interstate or foreign commerce. Note that waterways that are navigable waters under the Rivers and Harbors Act are not necessarily the same as navigable waterways as defined by Indiana's Flood Control Act. Engineer Form 4345, *Application for a Department of Army Permit* is used to apply for these permits. Only one application is required should both permits be required. The Corps will issue the appropriate permit and/or letter of permission (Section 10 or Section 404) needed for the activity.

For the Section 404 permit in non-tidal waters, the limits of jurisdiction are as follows:

1. No wetlands* present - jurisdiction is between the limit of the ordinary high water elevation on each bank.
2. When adjacent wetlands are present - the jurisdiction extends beyond the ordinary high water mark to the limits of the adjacent wetlands.
3. When only wetlands are present, the limits of jurisdiction extend to the limits of the wetlands.

Waters of the United States include sinkholes that permanently hold water, contain wetlands, or have an obvious high water mark. They do not include land that was converted from wetland to cropland prior to December 23, 1985, nor do they include waste treatment systems such as treatment ponds or lagoons designed to meet the requirement of the Clean Water Act.

INDOT is responsible for the proper disposal of items taken from our right-of-way, especially if it is to be placed within waters of the United States, including wetlands. This is true whether the items are placed on INDOT right-of-way, INDOT property or on private property.

The project engineer/ supervisor should ensure that a permit has been obtained, if one is required, prior to approving such disposal.

The Section 404/Section 10 Permit only covers those activities detailed by the plans and the conditions of the permit. If an activity is not shown either on the plans or in the permit conditions themselves, then these activities are not allowed if they occur in the waters of the United States. For example, the clearing or filling of an area located within waters of the United States that is not specifically shown on the plans should not be allowed to occur. This is especially true for wetlands areas. Read the permit. It tells you what you can and cannot do. If an activity is not specifically allowed in the permit or shown in the plans, and the contractor wishes to conduct this activity, then it is the responsibility of the contractor to obtain a permit or modification of the permit for the activity. The Corps will consider modification of the terms and conditions of the permit if requested to do so. If it is mutually agreed to do so, the Corps of Engineers will give the permittee written notice of the modification, which will become effective on the date established by the Corps of Engineers.

The permit often contains conditions. Conditions of the permits may include items such as the following:

- no impacts to jurisdictional wetlands
- no silting and muddying of streams
- utilization of temporary seeding to avoid soil erosion

These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit **must** be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions. **Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.**

* 'Wetlands' here means jurisdictional wetlands. A jurisdictional wetlands is an area that has undergone the process of identification and delineation as laid out in the January 1987 *Final Report by the Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1, and found to be consistent with the wetlands requirements of the manual.

See Army Corps of Engineers Section 404/Section 10 Permit (U.S.) in the Laws and Regulations Section.

Burning

A sinkhole is a feature that resembles a bowl and the diameter can vary from a few feet to tens of feet. Sinkholes are located in areas where limestone intersects the surface and are dissolved by natural waters. As sinkholes serve as drainage for the surrounding area, it is common to find woody products that have washed or been thrown into the sinkhole.

Open burning is generally prohibited. If it is determined that there is no alternative to the burning of woody material removed from the sinkhole then the contractor must obtain a variance from the Department of Environmental Management. Fires must be attended at all times until completely extinguished. No burning shall be conducted during unfavorable meteorological conditions such as temperature inversions, high winds, and air stagnation. Floyd County has an

air quality problem and will not allow any open burning variances. Some cities will have additional local restrictions. Additional information can be found in Operating Procedure 13. All pertinent training and personal protective equipment requirements should be obtained through the Safety Supervisor.

See the Burning Section of the Laws and Regulations Section for further information

Construction in a Floodway

Any project involving construction, excavation, or placement of fill within the floodway of any river or stream unless exempted, requires the written approval of the Indiana Department of Natural Resources (IDNR) prior to initiating the activity. A floodway is defined as the channel of a river or stream and those portions of the flood plain adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any river or stream. Typically this is the 100 year floodway. Note that this is a different jurisdictional limit than the U.S. Army Corps of Engineers Section 404 or the Section 401 Water Quality Certification has. Often the floodway is a larger area than the waters of the U.S.

Sinkholes are often encountered on construction projects within the karst region of Indiana. INDOT is required to take special precautions when working in the vicinity of sinkholes in order to prevent soil, sediments, and other contaminants from entering the sinkhole. When working on or around a sinkhole located within the floodway of a river or stream, a Construction in a Floodway permit is required.

INDOT is responsible for the proper disposal of items taken from INDOT right-of-way, especially if they are placed in the floodway. Such activity would require a Construction in a Floodway Permit.

Read the permit. It tells you what you can and cannot do. As with the U.S. Army Corps of Engineers Section 404 Permit and the Section 401 Water Quality Certification, the Construction in a Floodway Permit covers only those activities shown on the plans or specifically listed in the permit. No other activity is allowed in the floodway such as clearing or filling beyond the construction limits. Should the contractor wish to conduct such activity, then it is contractor's responsibility to contact the IDNR to obtain a waiver of the permit.

The Construction in a Floodway Permit often contains conditions. These conditions carry the force of law, and must be adhered to. They must be understood and complied with. They are currently being included in the letting package. The permit must be posted at the construction site. It is the project engineer's responsibility to be familiar with these conditions, and comply with them at all times. If there are conditions that you cannot feasibly comply with, contact the Division of Operations Support for assistance. Do not ignore any conditions. **Remember, if you have one permit for an activity, you are not exempted from obtaining all required permits for the same work. Make sure you have obtained all other required permits.**

See Construction in a Floodway Section for more detailed information.

Ditch Reconstruction

Since sinkholes are not considered public freshwater lakes, no Permit would be needed for work in or near a sinkhole.

See the Ditch Reconstruction Section of the Laws and Regulations Section for detailed information.

Endangered Species

The Northern (Blind) Cave fish is one state-endangered species living in the karst area. They live in underground rivers and karst area. Care must be taken not to adversely impact their habitat by lowering the quality of the waters in which they live. If the project is located near a sinkhole or a karst feature, the Indiana Department of Environmental Management (IDEM), will require control of the drainage such that the acute and chronic criteria for surface water quality criteria are not exceeded.

See the Endangered Species Section of the Laws and Regulations Section for detailed information (State Endangered Species Act IC 14-22-34).

Fugitive Dust

Fugitive dust means the generation of particulate matter to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located regardless of whether from a single operation or a number of operations. Simply, if at least fifty percent (50%) of the dust can be breathed in or is visible crossing the right-of-way, it is fugitive dust.

The filling or clearing of sinkholes may create fugitive dust. Indiana code states that fugitive dust from construction or demolition where **every reasonable precaution has been taken in minimizing fugitive dust emissions** is exempted from the fugitive dust rule. This code also provides some fugitive dust control measures. These include spraying with water or treating with an approved oil or chemical dust suppressant. These precautions are especially important on dry, windy days. Every reasonable precaution should be taken by the contractor to ensure that dust does not cross the right-of-way.

See the Fugitive Dust Section of the Laws and Regulations Section for detailed information.

Hazardous Material

During the early development of INDOT projects, the proposed right-of-way undergoes an investigation for the presence of hazardous waste. If found, INDOT attempts to have the site cleaned prior to the purchase of the property. Although it is desirable, hazardous materials cannot always be taken care of prior to the construction of INDOT projects. Known or unknown hazardous waste sites may have to be dealt with on INDOT right-of-way during the construction phase.

Sinkholes are sometimes used as dumping grounds for various waste materials. If you suspect a sinkhole may contain hazardous materials, contact the Division of Operations Support, stop work and remove all personnel from the area. Be on the lookout for the following indications that you may be dealing with hazardous waste:

- discovery of abandoned drums, barrels, old paint cans, chemical containers, tanks, pits, lagoons or ditches, discharge pipes
- surface water plumes
- debris piles
- raw material storage piles
- areas with burn marks
- an area that used to be a loading ramp or railroad staging area
- barren soil areas
- obvious changes in vegetation
- dead trees/shrubs
- recent ground disturbances
- surface staining or discoloration of soils
- odors

If soils are suspected to contain hazardous material, stop work and remove all personnel from the area immediately and notify the Division of Operations Support. Cordon off the area until classification of the waste has been made. Testing may be required to determine the waste classification of the contaminated material. Only properly trained (INDOT and contractor) personnel should be allowed in the area of the hazardous material. Contact the Division of Operations Support for guidance.

The hazardous material, if it is to be disposed of, must be disposed in a hazardous waste landfill.

A hazardous waste manifest signed by the generator (INDOT) must accompany each load of hazardous waste from cradle to grave. You must notify IDEM of your activities and obtain an EPA Identification Number. The manifest certification must be signed by the generator and transporter and have the date of acceptance of waste. INDOT must retain one copy of the report and give the transporter the remaining copies of the manifest.

See the Hazardous Materials Section of the Laws and Regulations Section for further information.

Injection Wells (Class V)

Notification of US EPA Region 5, and completion/submittal of a Class V Well Inventory Form may be required from INDOT when a construction project diverts additional storm water runoff into a sinkhole, or when a drywell is proposed for storm water disposal. This includes any INDOT construction activity which will permanently alter the quantity or quality of storm water runoff draining through a sinkhole. Although US EPA is not currently issuing "permits" for storm water disposal wells, notification and submittal of the well inventory form are required in order to obtain approval for the storm water discharge. As a condition of approval, US EPA may require some form of pretreatment (i.e. peat filter, grassed waterway, catch basins, etc.)

before discharging the storm water to a sinkhole. Any proposed pretreatment of the storm water runoff should be included with the Class 5 Well Inventory Form.

See the Injection Well (Class V) Section of the Laws and Regulations Section for further information.

Karst

Karst landscapes are usually formed on limestone from the surface and subsurface removal of rock mass by dissolution of calcite or dolomite. This forms irregularities on the land surface. Karst areas normally have caves that developed as a result of dissolution along joints, bedding planes, or other openings. As ground water dissolves subsurface limestone, cave systems enlarge and eventually the overburden will cause roofs of caves to collapse creating, on the surface, a bowl shaped land feature called a **sink hole.** Sink holes are direct conduits to ground water. Because the dissolution along the joints and bedding planes, ground water can travel extremely fast relative to ground water in other types of aquifers. Adsorption to aquifer material, biological uptake, and microbial activity are a few processes to reduce ground water pollution. However, in a karst region ground water flows through joints and along bedding planes much like water flows through pipes in our homes. This fast flow rate does not allow adsorption, microbial activity, or uptake processes to remove pollution from the ground water before it is pump from the ground by a landowner.

Karst features exist in an area of southern Indiana. This area ranges from 10-50 miles wide and stretches from Crawfordsville to the Ohio River (see map in Laws and Regulations Section). Much attention has been given by INDOT in the planning, design, and construction of road projects in the karst area. There are, however, certain responsibilities assigned to maintenance activities. INDOT has entered into a **Memorandum of Understanding** (copy attached in Laws and Regulations Section) with other agencies in an effort to learn more about karst features and to regulate certain activities in those areas. Included in this Memorandum of Understanding is a commitment from INDOT, Indiana Department of Natural Resources, Indiana Department of Environmental Management, and the U.S. Fish and Wildlife Service to determine the location of sinkholes, caves, underground streams, and other related Karst features and their relationship prior to proposed alterations or construction in karst regions of the State.

Roadways typically have runoff such as salt and unknown spills that pollute soils near the road. In karst terrain, construction activities may cause soil releases to ground water via nearby sink holes. Excess silt introduced into a sink hole may seal a fissure system effectively removing means of draining the roadway. A wide range of toxic contaminants adhere to soils and may be liberated when soils are introduced into water. Contractors are required to have an erosion control plan. Timely implementation of the plans is very important in the karst terrain. Maintenance of heavy machinery, such as oil changes, should be done in a designated area which should not be near the sinkhole. After adverse weather conditions, check erosion control measures for damage. The use of peat and other types of filters and wide grassy areas to catch and clean contaminants are some methods currently being used by INDOT to protect the groundwater. Likewise a project in a karst area might include the construction of detention and/or retention basins. Regular inspections should be scheduled to ensure minimum and satisfactory compliance with the Memorandum of Understanding.

Clearing right-of-way, grading, excavation, tile drains, pesticide and herbicide treatment, and runoff from roadways are a few issues that may endanger the ground water quality in karst

regions. It is important therefore, that you are aware of potential environmental impacts that could occur if construction activities were conducted in the usual manner. In addition to the possible lethal effects on wildlife, contamination of ground water used for drinking water could occur. Regular inspections should be scheduled to ensure minimum and satisfactory compliance with the Memorandum of Understanding. Any sinkhole modification may result in the need for an EPA Injection Well Permit. The Division of Operations Support should be contacted in this event or to answer any question concerning karst area activities.

*The **Memorandum of Understanding** states that prior to acceptance of the final design plans an agreement will be developed which will set out the appropriate and practicable measures to offset unavoidable impacts to karst features. This agreement will be signed by the Department Director of Indiana Department of Natural Resources (IDNR), the Commissioner of the Indiana Department of Environmental Management (IDEM), the commissioner of INDOT, and the Supervisor of the U.S. Fish and Wildlife Service (USFWS) Bloomington, Indiana field office. The agreement will become a part of the contract documents for the project, will be discussed at the pre-construction conference and will be on file at the office of the project administrator. INDOT will assure that the terms of the agreement will be completed with all safeguards given to the karst area. Special provisions, which are binding provisions that are a part of the contract, will be included outlining the precautions to be taken. Constructions and design strategies for handling karst features will be discussed with the contractor(s) and project administrator during the pre-construction conference. Project administrator shall ensure that the contractor is following the new erosion control standards that meet rule 5 of 327 IAC 15 and any special precautions outlined in the design plans that the sinkhole treatment is being handled correctly. The erosion control plan must be available at the project administrator's office. An emergency response plan will be made a part of the contract documents. In addition, the contract documents will contain a strategy for signing to alert the public to the fact that all types of spills are potentially hazardous to the karst environment. For INDOT, this plan would be procedure 20 of the field operations manual dated 6/24/92.*

See the Karst Section of the Laws and Regulations Section for further information.

Lake Preservation Act (Permit)

Since sinkholes are not considered public freshwater lakes, no Lake Preservation Act Permit would be needed for work in or near a sinkhole.

See the Lake Preservation Act Section of the Laws and Regulations Section for further information.

Rule 5-Erosion Control

Special care should be taken when working in the vicinity of sinkholes. The INDOT has entered into a Memorandum of Understanding (MOU) with several other agencies, which spells out certain requirements for construction projects taking place in close proximity to sinkholes.

One requirement of the MOU is that erosion control practices be utilized at the site, in order to keep eroded soil and sediments out of the sinkhole. An erosion control plan must be developed, and any special precautions for protecting the sinkhole should be included in the design plans. Special precautions which have been used in the past to protect sinkholes include peat filters, runoff retention basins with elevated inlets to sinkholes, grassed waterways, catch basins, and all common erosion control practices utilized at the construction site. Erosion control measures are also common conditions in many permits. Frequent temporary seeding is one of the most effective erosion control measures.

See the Rule 5 - erosion control regulations section for more detailed information.

Section 401 Water Quality Certification

The Indiana Department of Environmental Management is a signatory to the Karst Memorandum of Understanding. This and the regulatory capability of the Section 401 Water Quality Certification make it doubly important to comply with all permit conditions. If the project is located near a sinkhole or other karst feature, the regulatory agencies will require control of the drainage such that the acute and chronic criteria for surface water quality criteria are not exceeded.

See the Section 401 Water Quality Certification Section of the Laws and Regulations Section for further information.

Solid Waste Disposal

The following items are not regulated by the solid waste rules: uncontaminated rocks, bricks, concrete, road demolition waste materials, and dirt. These waste materials may be disposed of on INDOT property or at any Municipal Solid Waste Landfill (MSWLF). The materials may be buried on INDOT property with the permission of the Project Engineer. The material should be placed where construction activities will not occur. Concrete and solidified asphalt are not considered hazardous materials. These materials may be used as clean fill on the project site. If the material is to be buried on private property, written permission must be received from the property owner. Necessary arrangements shall be made with the owner for finding suitable disposal locations

When less than 100 kilograms of total Solid or Hazardous Waste has been generated in a single month, and disposed of in quantities of less than 100 kilograms, it can be considered a solid waste. Do not dispose of solid waste anywhere other than a permitted disposal site.

Spill Response

Nearly all kinds of spills in the karst area can be potentially lethal to the animals that live in the cave systems of this area. Spills should be reported to Office of Emergency Response, IDEM **(888) 233-7745**. This should occur as soon as action has been taken to either contain/control the extent of the release, or protect persons, animals or fish from harm or further harm. Appropriate response actions for spills occurring on project sites, in order:

1. Identify the spilled material from a safe distance,
2. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand or by other available means,

3. Cordon off the area of the spill,
4. Deny entry to the cordoned off area to all but response personnel, and
5. Contact OER/IDEM then Operations Support.

Refer to Spill Response Section in the Laws and Regulations Section, page 352 for details.

Borrow

Archaeological /Historic Preservation

Federally funded projects must comply with the requirements of the National Historic Preservation Act. If the contractor is being paid with federal funds, the obligations of the National Historic Preservation Act will extend to private property used by the contractor. Unless a borrow site that was previously cleared by an archaeologist is used, an archaeologist must clear the proposed borrow site prior to its use. It is generally not feasible for INDOT project personnel to be responsible for verifying that the contractor is complying with all appropriate laws when the contractor has been delegated the responsibility of complying with all appropriate laws and regulations by contract. However, if INDOT is aware of or has reason to believe that the contractor is violating the law, INDOT does have the obligation to prevent the violation and/or ensure that the contractor takes action to comply with federal law relating to historic preservation.

See Archaeological and Historic Section in the Laws and Regulations Section for further information.

Army Corps of Engineers Section 404/Section 10 Permits (U.S.)

Borrow taken from waters of the United States (this includes wetlands areas and non-commercial borrow pits which may be jurisdictional wetlands) requires a U.S. Army Corps of Engineers. Likewise, wasting excess material in waters of the U.S. also requires a permit. Normally neither the source for borrow, nor the waste site for excess material is stipulated in the contract or the permits. If the contractor chooses to obtain borrow or waste excess material in waters of the United States, it is his responsibility to obtain the appropriate permits.

INDOT is responsible for the proper disposal of items taken from INDOT right-of-way. The project engineer should ask to see a copy of the contractor's Army Corps Permit if the material is wasted in waters of the U.S.

To avoid liability, if INDOT is aware of or has reason to believe that the contractor has not obtained a permit or is violating the law, INDOT has the obligation to exercise due diligence in preventing the violation or ensuring that the contractor takes action to obtain the appropriate permit. If the contract contains a clause stating that the contractor is responsible for obtaining all necessary permits, the contractor's failure to obtain a permit can be considered a beach of the contract and INDOT may be able to make a claim for damages against the contractor in the

amounts of any fines INDOT has to pay for the violation. The contractor can also be brought up before the prequalification committee for failure to comply with the contract provisions

See Army Corps of Engineers Section 404/Section 10 Permit (U.S.) Section in the Laws and Regulations Section for further information.

Burning

Open Burning

Open burning is generally prohibited. If it is determined that there is no alternative to the burning of woody material, then an Open Burning Variance must be obtained from the Indiana Department of Environmental Management (IDEM). For INDOT projects involving clearing of less than 4 (1.6 ha) acres, the contractor must obtain a variance. For projects clearing greater than 4 acres, INDOT will obtain the variance. Fires must be attended at all times until completely extinguished. No burning shall be conducted during unfavorable meteorological conditions such as temperature inversions, high winds, air stagnation, etc. Clark, Floyd, Lake and Porter counties have an air quality problem and will not allow any open burning variances. Some cities will have additional local restrictions. Additional information can be found in Operating Procedure 13. All pertinent training and personal protective equipment requirements should be obtained through the Safety Supervisor.

Air Curtain Destructor (Burning)

Air curtains are two long pipes constructed into a "T" shape, which is positioned next to a pit in the ground with approximately 12 to 15 ft. depth and 10 ft. width. The length of the pit is a function of the length of the pipe. A fan is connected at the end of the "T" shape and forces air through a slit at the other end. This curtain of air is blown into the pit where the burning of the woody material should be maintained below the curtain of air. A completed application and $50 fee must be submitted at least 30 days before operation begins to the Department of Environmental Management (IDEM) to obtain an approval letter which must remain at the air curtain destructor site at all times. Only untreated wood products shall be burned. The air curtain destructor shall be located no less than 250 feet from any private residence, public roadway, power line, or structure, no less than 500 feet from any pipeline or fuel storage area, and within 1,000 feet of a landfill or transfer station. A list of approval conditions can be found in the Laws and Regulations Section.

See the Burning Section of the Laws and Regulations Section for further information.

Construction in a Floodway

Any project involving construction, excavation, or placement of fill within the floodway of any river or stream that is not exempted, requires the written approval of the Indiana Department of Natural Resources (IDNR) prior to initiating the activity. A floodway is defined as the channel of a river or stream and those portions of the flood plain adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any river or stream. Typically this is the 100 year floodway. Generally, any activity which disturbs soil or

sediments within the floodway, and does not meet the requirements of the bridge exemption, requires a permit from IDNR.

Borrow taken from the floodway (this includes wetlands areas and non-commercial borrow pits, may require a construction in a floodway permit. To avoid liability, if INDOT is aware of or has reason to believe that the contractor has not obtained a permit or is violating the law, INDOT has the obligation to exercise due diligence in preventing the violation or ensuring that the contractor takes action to obtain the appropriate permit. If the contract contains a clause stating that the contractor is responsible for obtaining all necessary permits, the contractor's failure to obtain a permit can be considered a beach of the contract and INDOT may be able to make a claim for damages against the contractor in the amounts of any fines INDOT has to pay for the violation. The contractor can also be brought up before the prequalification committee for failure to comply with the contract provisions

Likewise, wasting excess material in a floodway also requires a permit. Normally neither the source for borrow, nor the waste site for excess material is stipulated in the contract or the permits. INDOT is responsible for the proper disposal of items taken from INDOT right-of-way (disposing of waste material). The project engineer should ask to see a copy of the contractor's Construction in a Floodway Permit if the material is wasted in the floodway. If the contractor chooses to obtain borrow or waste excess material in a floodway, it is his responsibility to obtain the appropriate permits.

See the Construction in a Floodway Laws and Regulations section for more detailed information.

Endangered Species

Some endangered species in the State of Indiana are the bald eagle, Indiana bat/gray bat, Northern Cave Fish, and mussels. Care must be taken not to disturb their habitat.

See the Endangered Species Section of the Laws and Regulations Section for detailed information (State Endangered Species Act IC 14-22-34).

Fugitive Dust

Fugitive dust may be generated by obtaining borrow. Fugitive dust from construction or demolition where **every reasonable precaution has been taken in minimizing fugitive dust emissions** is exempted from the fugitive dust rule. This rule provides some control measures. A few control measures may be spraying with water or treating with an approved oil or chemical dust suppressant. These precautions are especially important on dry windy days.

See the Fugitive Dust Section in the Laws and Regulations Section for further information.

Lake Preservation Act (Permit)

Since borrow pits are not considered public freshwater lakes, no Lake Preservation Act Permit is required. However, a borrow pit must not be constructed so that it lowers the water level in a nearby, naturally occurring lake below what is the normal water level for that lake.

See the Lake Preservation Act Section in the Laws and Regulations Section for further information

Rule 5 - Erosion Control

The land area disturbed by on site borrow by a contractor must be included in the total land area disturbed by its associated project when determining if a construction project requires the preparation and submittal of an erosion control plan. Off site borrow bits are not considered part of on site construction. However, if the borrow pit activity disturbs 1 or more acres of land, it **is** subject to Rule 5. The contractor is responsible for preparing the erosion control plan for the borrow area and any other facilities beyond the right-of-way which will be used in conjunction with the project's work.

See the Rule 5-Erosion Control Section in the Laws and Regulations Section for further information.

Section 401 Water Quality Certification

Borrow taken from waters of the United States (this includes wetlands - non-commercial borrow pits may be jurisdictional wetlands) requires a Section 401 Water Quality Certification. Normally neither the source for borrow, nor the waste site for excess material is stipulated in the contract or the permits. If the contractor chooses to obtain borrow or waste excess material in waters of the United States, it is his responsibility to obtain the appropriate permits. To avoid liability, if INDOT is aware of or has reason to believe that the contractor has not obtained a permit or is violating the law, INDOT has the obligation to exercise due diligence in preventing the violation or ensuring that the contractor takes action to obtain the appropriate permit. If the contract contains a clause stating that the contractor is responsible for obtaining all necessary permits, the contractor's failure to obtain a permit can be considered a beach of the contract and INDOT may be able to make a claim for damages against the contractor in the amounts of any fines INDOT has to pay for the violation. The contractor can also be brought up before the prequalification committee for failure to comply with the contract provisions

INDOT is responsible for the proper disposal of items taken from INDOT right-of-way (disposing of waste material). Wasting excess material in waters of the U.S. requires various permits. The project engineer should ask to see a copy of the contractor's Section 401 Water Quality Certificate if the material is wasted in waters of the U.S.

See Section 401 Water Quality Certification Section in the Laws and Regulations Section for further information.

Solid Waste Disposal

Disposing of only uncontaminated dirt, rocks, bricks, concrete and road demolition waste materials are not subject to the solid waste regulations. These wastes may be disposed of on INDOT property or in a certified Municipal Solid Waste Landfill (MSWLF). Disposal of the solid waste in a barrow area may require various permits such as the US Army Corps of Engineers Section 404 Permit, and IDEM's Section 401 Permit. If the contractor chooses to dispose of highway solid waste in such a manner, then the Project Engineer must make sure that the contractor has the appropriate permits before the disposal occurs. Contact the Division of Operations Support for more information.

Refer to the Solid Waste Disposal Section and the various permit sections in the Laws and Regulations Section for details.

Spill Response

Hazardous material releases, oil spills, fish/animal kills and radiological incidents must be reported to Office of Emergency Response, IDEM **(888) 233-7745.** This should occur as soon as action has been taken to either contain/control the extent of the release, or protect persons, animals or fish from harm or further harm. Appropriate response actions for spills occurring on project sites, in order:

1. Identify the spilled material from a safe distance,
2. Contain the spilled material or block/restrict its flow using absorbent booms/pillows, dirt, sand or by other available means,
3. Cordon off the area of the spill,
4. Deny entry to the cordoned off area to all but response personnel, and
5. Contact OER/IDEM then Operations Support.

Refer to Spill Response Section in the Laws and Regulations Section for details.